

## **REMARKS**

### Amendments to the Specification

The first paragraph of the specification is herein amended to include the serial numbers, filing dates and dates of issue for the patents originally recited in this paragraph. These serial numbers, filing dates and dates of issue were included with the New Application Transmittal sheet for the application on the date of filing. As such, these amendments are not new matter.

A paragraph beginning on page 35 is amended herein to refer to an oligonucleotide "comprising a sequence selected from the group consisting of SEQ ID NO:28372868-4004." This amendment is made to correct a typographical error. The collection of oligonucleotides identified as SEQ ID NOS:2868-4004 is also described in the legend for Figure 49 at page 64, line 5, and thus this amendment does not represent new matter.

### Rejections and Objections

Claims 46-48 are pending in the present application. The Examiner has raised a number of objections and rejections. For clarity, these objections and rejections are listed below in the order in which they are addressed herein.

- I. Claim 46 is rejected under the judicially created doctrine of obviousness type double patenting.
- II. The disclosure is objected to for informalities relating to inconsistencies in the priority information in the first paragraph of the specification, the oath, and the information in the USPTO computer system, and for Figure descriptions in the specification.
- III. Claims 47-48 are rejected under 35 U.S.C. §101 as allegedly lacking a substantial utility.
- IV. Claims 47-48 are rejected under 35 U.S.C. §112, first paragraph.
- V. Claim 46 is rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement.

**VI.** Claim 1 is rejected under 35 U.S.C. §102(b) as allegedly being anticipated by the Sigma catalog.

**I.** Claim 46 is rejected as being unpatentable under the judicially created doctrine of obviousness type double patenting over Claims 1-32 of U.S. Patent No. 5,846,717, Claims 1-20 of U.S. Patent No. 5,985,557, Claims 1-34 of U.S. Patent No. 5,994, 069, certain claims of U.S. Patent No. 6,001,567, Claims 1-27 of U.S. Patent No. 6,090,543, Claims 1-72 of U.S. Patent No. 6,348,314, and Claims 1-27 of U.S. Patent No. 6,458, 535, Claims 6-8 of U.S. Patent No. 6,555,357, Claims 33-47 of U.S. Patent No. 6,562,611, Claims 1-38 of U.S. Patent No. 6,692,917, and Claims 1-26 of U.S. Patent No. 6,704,471.

Applicants respectfully disagree. Nonetheless, for business reasons and without acquiescing to the Examiner's arguments, and reserving the right to prosecute the same or similar claims in the future, Claim 46 is canceled without prejudice in the present amendment. Cancellation of Claim 46 renders this rejection moot.

**II.** The disclosure is objected to for informalities relating to inconsistencies in the priority information in the first paragraph of the specification, the oath, and the information in the USPTO computer system, and for Figure descriptions in the specification.

The Examiner has requested that Applicants check information regarding the applications to which the present application claims priority. Included herewith is an Application Data Sheet having a list of priority applications that is corrected to remove typographical errors. The first paragraph of the specification is herein amended to include the serial numbers, filing dates and dates of issue for the patents recited in this paragraph at the time of filing. The serial numbers, filing dates and dates of issue of these patents were included with the New Application Transmittal sheet for the application on the date of filing and, as such, these amendments are not new matter.

The Examiner has asserted that references to Figures 22 and 24 on pages 58 and 59, respectively should recite "Figure 22A and B" and "Figure 24A and B," respectively. For business reasons and without acquiescing to the Examiner's objections, and reserving the right to prosecute applications having the original language in the future, the present application is amended herein to recite "Figures 22A and B" and "Figures 24A and B" at pages 58 and 59, respectively.

For the reasons recited above Applicants submit that all grounds for objection have been addressed and respectfully request that these objections to the specification be removed.

**III.** Claims 47 and 48 are rejected under 35 U.S.C. §101 as allegedly lacking any specific or substantial asserted utility, or well established utility. Applicants respectfully disagree, as Applicants have asserted specific utility for the compositions of the present invention. As indicated in the specification, the claimed compositions are novel enzymes designed for direct detection, characterization and quantitation of nucleic acids, particularly RNA (page 1, lines 10-11). As further indicated in the Description of the Invention at page 35, lines 11-14, the enzymes of the present invention are particularly useful in the performance of detection assays based on the cleavage of a structure that comprises an RNA strand. The INVADER invasive cleavage reaction is indicated to be one such assay (page 34 at lines 23-25).

The polypeptide of SEQ ID: 2857 is specifically identified as an improved cleavage enzyme (page number). As such, this improved enzyme has at least the specific utility asserted for all of the novel enzymes of the invention: *i.e.*, it is useful in the "performance of detection assays based on the cleavage of a structure that comprises an RNA strand," (page 35, lines 11-14.)

For the reasons recited above Applicants submit that invention as claimed meets the requirements of 35 U.S.C. §101 and respectfully request that these rejections be removed.

**IV.** Claims 47-48 are rejected under 35 U.S.C. §112, first paragraph. In particular the Examiner alleges that, in view of the alleged lack of substantial asserted utility discussed above, one skilled in the art would not know how to use the claimed invention.

Applicants disagree. As discussed above, Applicants have clearly asserted substantial and specific utility for the improved cleavage enzymes of the present invention. Further, the specification provides ample guidance for using the claimed invention. For example, Example 19, beginning on page 297 at line 17, provides detailed description of embodiments of the presently claimed invention. As such, one of skill in the art, upon consideration of the specification, would know how to use the claimed invention and Applicants therefore respectfully request that these rejections be removed.

**V.** Claim 46 is rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement. In particular, the Examiner alleges that the claims contain no definitions for the terms "an invasive cleavage assay," "an invasive cleavage structure," or "an RNA target nucleic acid," and asserts that without these limitations in the claims, the specification is not enabling for the claim. Applicants respectfully disagree. The specification provides ample support for, and numerous examples of, invasive cleavage assays, invasive cleavage structures and RNA target nucleic acids, and, as such, the claims meet the requirements of 35 U.S.C. §112.

Nonetheless, for business reasons and without acquiescing to the Examiner's arguments, and reserving the right to prosecute the same or similar claims in the future, Claim 46 is canceled without prejudice in the present amendment. Cancellation of Claim 46 renders this rejection moot.

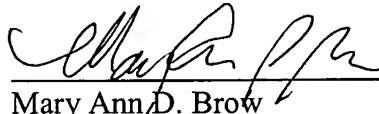
**VI.** Claim 1 is rejected under 35 U.S.C. §102(b) as allegedly being anticipated by the Sigma catalog. The Examiner has asserted that Claim 1 is anticipated. Claim 1 was canceled without prejudice in a prior amendment and is not pending in the present case. Applicants therefore infer that the Examiner intended to refer to the first of the pending claims, i.e., Claim 46 and have drafted the present response accordingly. If this inference is incorrect, Applicants request clarification of this rejection.

For business reasons and without acquiescing to the Examiner's argument, and reserving the right to prosecute the same or similar claims in the future, Claim 46 is canceled without prejudice in the present amendment. Cancellation of Claim 46 renders this rejection moot.

**CONCLUSION**

For the reasons set forth above, it is respectfully submitted that all rejections and objections should be removed and Applicants' claims should be passed to allowance. Should the Examiner believe that a telephone interview would aid in the prosecution of this application, Applicants encourages the Examiner to call the undersigned collect at (608) 218-6900.

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